



# UNITED STATES PATENT AND TRADEMARK OFFICE

h  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,764	08/04/2003	Yihua Chang	4022-000009	6497
27572	7590	07/02/2007	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			MIGGINS, MICHAEL C	
P.O. BOX 828			ART UNIT	PAPER NUMBER
BLOOMFIELD HILLS, MI 48303			1772	
MAIL DATE		DELIVERY MODE		
07/02/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/633,764	CHANG ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Michael C. Miggins	1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 01 February 2007.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1,4-28 and 30-54 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1, 4-28, 30-54 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. In view of the appeal brief filed on 2/1/07, PROSECUTION IS HEREBY REOPENED. New grounds for rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 12 and 48-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 depends on claim 2 which has been canceled.

Claims 48-50 depend from depend on claim 29 which has been canceled.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 4-27 rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins (WO 02/36196) in view of Mueller et al. (US 6403231).

Watkins discloses articles, such as balls and shoes, made from laminate barrier membranes and permanently sealed inflatable bladders formed from them (page 1, lines 8-10 and page 3, lines 30-35). The articles have ethylene vinyl alcohol copolymer barrier layers (page 6, lines 6-16, page 12, lines 23-31) bonded to thermoplastic polyurethane elastomer layers (page 6, lines 17-30) and the bladders are inflated with nitrogen (page 3, lines 34-35).

Watkins fails to disclose a laminar nano-filler having an average particle platelet thickness of up to about 10 nanometer, an average aspect ratio of at least about 200,

and at least one of height and width being independently from about 0.1 to about 1.5 wherein the nano-filler does not appreciably decrease the resilience of the membrane.

Mueller discloses a laminar montmorillonite nano-filler having an average particle platelet thickness of up to about 10 nanometer, an average aspect ratio of at least about 200 (column 3, lines 30-44 and column 5, lines 31-35, column 7, lines 15-21), and at least one of height and width being independently from about 0.1 to about 1.5 (column 3, lines 30-44) wherein the nano-filler does not appreciably decrease the resilience of the membrane (column 6, lines 41-54, since the films are flexible) in an EVOH barrier layer (column 4, lines 19-20, column 5, lines 3-4) for the purpose of providing improved gas barrier properties (column 3, lines 1-19).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a laminar nano-filler having an average particle platelet thickness of up to about 10 nanometer, an average aspect ratio of at least about 200, and at least one of height and width being independently from about 0.1 to about 1.5 wherein the nano-filler does not appreciably decrease the resilience of the membrane in the EVOH layer of Watkins in order to provide improved gas barrier properties as taught or suggested by Mueller.

6. Claims 28 and 30-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonk et al. (US 6082025) in view of Mueller et al. (US 6403231).

Bonk discloses articles, such as balls and shoes, made from laminate barrier membranes and permanently sealed inflatable bladders formed from them (column 1,

Art Unit: 1772

lines 16-40). The articles have ethylene vinyl alcohol copolymer barrier layers (column 11, line 64 through column 12, line 23) bonded to thermoplastic polyurethane elastomer layers (column 7, lines 31-62) and the bladders are inflated with nitrogen (column 1, lines 4-13), said membrane includes alternating microlayers of thermoplastic polyurethane elastomer and EVOH copolymer barrier material, wherein the number of layers is from 10 to 1000 (column 7, lines 1-62, column 11, line 64 through column 12, line 23).

Bonk fails to disclose a laminar nano-filler having an average particle platelet thickness of up to about 10 nanometer, an average aspect ratio of at least about 200, and at least one of height and width being independently from about 0.1 to about 1.5 wherein the nano-filler does not appreciably decrease the resilience of the membrane.

Mueller discloses a laminar montmorillonite nano-filler having an average particle platelet thickness of up to about 10 nanometer, an average aspect ratio of at least about 200 (column 3, lines 30-44 and column 5, lines 31-35, column 7, lines 15-21), and at least one of height and width being independently from about 0.1 to about 1.5 (column 3, lines 30-44) wherein the nano-filler does not appreciably decrease the resilience of the membrane (column 6, lines 41-54, since the films are flexible) in an EVOH barrier layer (column 4, lines 19-20, column 5, lines 3-4) for the purpose of providing improved gas barrier properties (column 3, lines 1-19).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a laminar nano-filler having an average particle platelet thickness of up to about 10 nanometer, an average aspect ratio

of at least about 200, and at least one of height and width being independently from about 0.1 to about 1.5 wherein the nano-filler does not appreciably decrease the resilience of the membrane in the EVOH layer of Bonk in order to provide improved gas barrier properties as taught or suggested by Mueller.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Miggins whose telephone number is 571-272-1494. The examiner can normally be reached on 1:00-10:00pm.

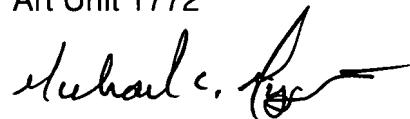
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dye Rena can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/633,764  
Art Unit: 1772

Page 7

Michael C. Miggins  
Primary Examiner  
Art Unit 1772



MCM  
June 22, 2007



JENNIFER C. MCNEIL  
SUPERVISORY PATENT EXAMINER  
u/25/7